

Amendment Under 37 C.F.R. § 1.111  
U.S. Application No.: 10/694,772

Atty Dkt No.: 71450.00009

### REMARKS

Claims 1-5 and 18 are presently pending in the application. Claims 6-17 have been withdrawn by the Examiner as being directed to a non-elected invention, since Claims 1-5 and 18 are considered constructively elected for prosecution on the merits by the Examiner. Claims 6-17 have been canceled without prejudice or disclaimer. Reconsideration and allowance of all claims is respectfully requested in view of the following remarks.

The Applicants respectfully remind the Examiner that they still await receipt of the initialed Form PTO/SB/08 that was filed on October 29, 2003, from the Examiner. The Examiner is respectfully requested to forward said initialed PTO/SB/08 Form with the next Office Action.

#### Claim Objections

The Examiner has objected to Claims 1 and 18 as not clearly describing the invention.

A) The Examiner has suggested that --having a generally narrow central portion-- be inserted in Claims 1 and 18 after "widened end portions", to be more clear.

The Applicants respectfully disagree that further limitation is necessary, since the layers, including the base insulating layer, are already described as being of a generally rectangular flat, strip-shape, and having relatively rectangular, flat, widened end portions -- which is understood to mean that the strip-shape is relatively narrow compared to "widened" end portions.

However, in order to further the prosecution of this case, Claims 1 and 18 have been amended to include this limitation.

B) The Examiner has suggested that --one of-- be inserted after "insulating layer" in Claims 1 and 18. Claims 1 and 18 have been amended in accordance with the Examiner's

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suggestion.

C) The Examiner has suggested that --of the flexible wired circuit board-- be inserted after "widened end portions" in Claims 1 and 18.

The Applicants respectfully disagree. Since the claims are reciting the elements of the wired circuit board, to add --of the flexible wired circuit board-- would be redundant, and make the claims unclear.

The Examiner has suggested that --temperature detecting-- be inserted in Claim 18 after "sensor-wiring".

Claim 18 has been amended to provide proper antecedent basis for "the temperature detecting portion" (see page 8, lines 14-15 of the present specification).

Accordingly, the Examiner's objection to the claims due to informalities, should now be overcome.

Claim Rejections under 35 U.S.C. §112

Claims 1-5 and 18 are rejected under 35 U.S.C. § 112 as being indefinite.

Although, as stated above, the Applicants disagree that the claims are not definite, in order to further the prosecution of this case, Claims 1 and 18 have been amended to recite that all the layers of the wired circuit board are formed in a generally rectangular, flat, strip-shape, and have "a relatively narrow central portion", and relatively rectangular, flat, widened end portions, which should obviate the Examiner's rejection.

Claim Rejections under 35 U.S.C. §103

Claims 1 and 3-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmermund (6,341,892). Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kiec et al. (5,134,248) in view of Sommer (3,966,578) and Wienand

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(5,037,488). Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al (5,053,740). Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al. in view of Sommer. Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al. in view of JP 61179764A. Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmermund in view of JP 61179764A.

For the following reasons, the prior art rejections are respectfully traversed.

The Applicants respectfully submit that neither Schmermund nor Schultz et al., teaches or suggests a flexible wired circuit board having a plurality of layers formed in a generally rectangular, flat, strip-shape, and having a generally narrow central portion and relatively rectangular, flat, widened end portions, for temperature measurement, the layers including a conductor layer, and a base insulating layer formed on one side of the conductor layer; wherein the conductor layer is formed from a metal foil having a proportional relation between temperature and specific electric resistance; wherein the conductor layer includes a temperature detecting portion formed when the conductor layer is formed as a wiring portion and arranged in a predetermined pattern on the base insulating layer, and wherein the temperature detecting portion is formed on the base insulating layer at one of the generally rectangular, flat, widened end portions of the base insulating layer, as recited in amended Claim 1, and as substantially recited in amended Claim 18.

With respect to Schmermund, Schmermund discloses a thermometer probe, which is not a flexible wired circuit board having a plurality of layers with a generally rectangular, flat, strip-shape, and a relatively narrow central portion and relatively rectangular, flat, widened end portions, wherein the temperature detecting portion is formed on the base

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insulating layer, at one of the generally rectangular, flat, widened end portions of the base insulating layer.

Rather, Schmermund only discloses a probe 12 with a cylindrical stem 13, and a narrow temperature sensing tip 14 as an extension of the stem 13. The temperature sensing tip 14 is not on a "widened" end portion, and the Examiner is incorrect in stating that there are any differences in the width of the ceramic substrate 17. As can be seen from Fig. 2, the substrate 17 is identical in its width throughout.

Further, Schultz et al. disclose only a temperature sensor for a heating oven, including a square-shaped planar metal panel or substrate 12, with a layer of porcelain enamel 14, on which a metal panel 12 is exposed with an element 16 deposited thereon. Further, the element 16 and the panel 12 are identical in width, contrary to the Examiner's assertion that the layers have different relative widths (i.e., a narrow central portion and widened end portions).

In contrast, the flexible wired circuit board of the present invention, has a generally rectangular, flat, strip-shape, and generally narrow central portion and relatively rectangular, flat, widened end portions, and the temperature sensing portion 16 is disposed on the base insulating layer 5 at a widened end portion.

The Examiner is reminded that any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989), and MPEP 2111.02.

Further, the Applicants respectfully submit that the preamble breathes "life, meaning and vitality" into the claim, and the limitations in the body of the claim refer back to the

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preamble, providing patentable weight to the structure of the layers (i.e., the generally rectangular, flat, strip-shape with relatively narrow central portion and relatively rectangular, flat, widened end portions) of the flexible wired circuit board. See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999) and MPEP 2111.02.

Accordingly, Claims 1 and 18 are patentably distinguishable over Schmermund.

With respect to Claim 2, the addition of the JP 61179764A reference does not make up for the deficiencies in Schmermund and Schultz et al.

Further, since Claims 2-5 depend from Claim 1, they are also patentably distinguishable over either the individual or the combination of Schmermund, Schultz et al., and JP 61179764A, for at least the reasons cited above with respect to Claim 1.

With respect to Claim 18, the Applicants respectfully submit that neither Kiec et al., Sommer, nor Wienand, teaches or suggests a flexible wired circuit board having a plurality of layers formed in a generally rectangular, flat, strip-shape, and having a generally narrow central portion and relatively rectangular, flat, widened end portions for temperature measurement, the layers including a conductor layer formed from a stainless foil; a base insulating layer formed from a polyimide film formed on one side of the conductor layer; a cover insulating layer formed from a polyimide film, and formed on another side of the conductor layer; wherein the conductor layer, including a main wiring portion for wiring and a sensor-wiring portion, including a temperature detecting portion, is formed in one piece in a form of a predetermined pattern; and wherein the temperature detecting portion is formed on the base insulating layer at one of the generally rectangular, flat, widened end portions of the base insulating layer.

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Rather, Kiec et al. disclose a serpentine shaped thin film material, and the Examiner is incorrect in stating that Fig. 1, which shows the resistive temperature device (RTD), includes a "rectangular" shaped device having different widths (i.e., a strip-shape with narrow central portion and widened end portions). Further, the temperature detecting portion is not shown as being at "a widened end portion", but rather, is a metal film 12 which is a serpentine layer and conductive throughout its length.

As stated above, the Examiner must take the preamble into account as a claim limitation in limiting the structure of the claims.

With respect to Sommer, Sommer discloses a circular thin-film thermistor made of a circular polyimide film 11, but does not disclose or suggest a conductor layer and a base insulating layer formed in a generally rectangular, flat, strip-shape, and having a generally narrow central portion and relatively rectangular, flat, widened end portions, wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions. As stated above, the Examiner must take the preamble into account as a claim limitation in limiting the structure of the claimed.

Further, no cover insulating layer 7 is formed on strips 17 or wires 21 in Sommer. However, in the present invention, a cover insulating layer 7 is formed on the conductor layer 6 and base insulating layer 5.

Finally, Wienand discloses a circular-shaped temperature sensor, but does not disclose or suggest layers of a flexible wired circuit board formed in a generally rectangular, flat, strip-shape, and having a generally narrow central portion and relatively rectangular, flat, widened end portions, wherein the temperature detecting portion is formed on the base insulating layer at the generally rectangular, flat, widened end portions of the base insulating

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layer.

As stated above, the Examiner must take the preamble into account as a claim limitation in limiting the structure of the claims.

Further, there is no motivation to combine the Kiec et al. reference with either Sommer or Wienand, since all the prior art references are directed to specific types of thin film temperature detection devices (i.e., for mechanically oscillating systems such as in Wienand, or electrical connectors as in Kiec et al, and for weather balloons as in Sommer), and are physically disparate. One of ordinary skill in the art of flexible wired circuit boards would not have looked to these thin film temperature detection devices in order to achieve the claimed features of the present invention.

The Examiner is reminded that the fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the references to do so." 916 F.2d at 682, 16 USPQ2d at 1432. A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000). See MPEP 2143.01.

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Additionally, the Examiner is reminded that even when the level of skill in the art is high, the Examiner must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Examiner must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious". *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

Thus, the Examiner has not proven a *prima facie* case of obviousness of Claim 18 over either the individual or the combination of the Kiec et al., Sommer, and Wienand references, and is using impermissible hindsight in combining the references to achieve the claimed features of the present invention.

Further, even if combined, these disparate references would not result in the claimed features of the present invention.

Accordingly, Claim 18 is not obvious over either the individual or the combination of the Kiec et al., Sommer, and Wienand references, and the rejection of Claim 18 under 35 U.S.C. §103 should be withdrawn.

If the Examiner believes that there is any issue which could be resolved by a telephone or personal interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

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Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such an extension is to be charged to Deposit Account No. 04-1061.

Respectfully submitted,

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